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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/646,747 | 08/25/2003 | Makoto Ono | Q76400 | 1774 |
| 23373 | 7590 | 08/01/2005 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | | SPEER, TIMOTHY M |
| | | ART UNIT | | PAPER NUMBER |
| | | 1774 | | |

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------------------------|------------------------------------|
| Office Action Summary | Application No. 10/646,747 | Applicant(s) ONO, MAKOTO |
| | Examiner Timothy M. Speer | Art Unit 1774 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 August 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08-25-03.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____ .

DETAILED ACTION

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 08-25-2003 has been considered and made of record. A copy of the 1449 initialed, dated and signed by the Examiner is included herewith.

Claim Objections

3. Claim 6 is objected to because of the following informalities: at line 2, the word "the" should be inserted after "wherein". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto (JP 2002-307834; machine translation attached) in view of Otaki (JP 361095978, abstract only).

Makoto teaches thermal recording materials comprising a thermal recording layer and a protective layer (abstract). The protective layer includes a water soluble resin, such as long-chain alkyl ether modified PVA having 8-20 carbon atoms, and at least one type of inorganic ultrafine particles; the PVA may comprise the monomer units recited in instant claim 7 (detailed

description, paragraphs [0006] to [0009], for instance). Makoto fails to teach the inclusion of a water soluble or oil soluble group IV compound.

Otaki teaches that the inclusion of zirconium compounds in the protective layer of a thermal recording material improves storability of the material. Moreover, Otaki exemplifies water or oil soluble zirconium compounds.

Therefore, it would have been obvious to one having ordinary skill in the art to include a zirconium compound in the protective layer of Makoto, since Otaki teaches that such compounds, when incorporated into the protective layer, improve storability of the thermal recording material. Regarding claim 4, discovering optimum or workable ranges for the amount of zirconium compound involves no more than routine experimentation by a worker in the art and is not considered to be inventive.

6. Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto in view of Otaki, as applied to claims 1-7 above, and further in view of Jimbo (US 5,998,082).

Makoto and Otaki were discussed above and fail to teach the inclusion of boric acid in a thermal recording material. Jimbo teaches that boric acid may be used as a stabilizer in thermal recording materials (col. 19, lines 52-55, for instance). Therefore, it would have been obvious to add boric acid to the combination of Makoto in view of Otaki, as discussed above, in order to exploit the art recognized stabilizing affects of boric acid in thermal recording materials.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Speer whose telephone number is 571-272-8385. The examiner can normally be reached on M-Th, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L. Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy M. Speer

A handwritten signature in black ink, appearing to read "B. Hamilton Hess". The signature is fluid and cursive, with "B. Hamilton" on the left and "Hess" on the right, separated by a vertical line.

B. HAMILTON HESS
PRIMARY EXAMINER